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DISCUSSION PAPER SERIES

IZA DP No. 12902

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JANUARY 2020

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# Gender Promotion Gaps: Career Aspirations and Workplace Discrimination

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## ABSTRACT

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# Gender Promotion Gaps: Career Aspirations and Workplace Discrimination

Using a nationally representative longitudinal survey of lawyers in the U.S., we document a sizeable gap between men and women in their early aspirations to become law firm partners, despite similar early investments and educational characteristics. This aspiration gap can explain a large part of the gender promotion gap that is observed later. We propose a model to understand the role of aspirations and then empirically test its predictions. We show that aspirations create incentives to exert effort and are correlated with expectations of success and the preference for becoming a partner. We further show that aspirations are affected by early work experiences – facing harassment or demeaning comments early in the career affects long-term promotion outcomes mediated via aspirations. Our research highlights the importance of accounting for, and managing, career aspirations as an early intervention to close gender career gaps.

**JEL Classification:** M51, J16, K40, J44

**Keywords:** promotion, aspirations, gender gaps

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# 1 Introduction

Professional gender gaps are persistent, despite the strong efforts in recent years to close them. While a large share of academic and popular attention has focused on the existence of gender wage gaps, gender differentials persist in many other professional dimensions. In particular, there exist sizeable gender promotion gaps. For instance, among S&P500 companies, women account for only 5% of CEOs, 21% of board members, and 26% of managers.<sup>1</sup> In other professions, women account for 20% of law firm partners;<sup>2</sup> and 32% of university professors.<sup>3</sup> Naturally, wage gaps and promotion gaps are highly linked — a promotion is often accompanied by an increase in pay. However, the consequences of promotion are broader than simply monetary. For instance, promotions often represent a change in status and power within an organization.

In this paper, we highlight the importance of early career aspirations in explaining gender promotion gaps. We study this in the context of the legal profession in the U.S., using a nationally representative sample of U.S. lawyers who are tracked along their professional careers. We document that among those lawyers who enter private law, when asked early in their career, there is a sizeable difference between men and women in their aspirations to become a partner. While approximately 60% of male lawyers have high career aspirations, this is the case for only 32% of female lawyers. This aspiration gap helps explain a large fraction (approximately 50%) of the gender promotion gap in the profession — a gap that cannot be explained by a detailed set of entry-level characteristics, which are broadly similar across men and women.

We propose a formal model to understand the role played by aspirations on career outcomes and empirically test its predictions. Aspirations are understood as a kink in the utility function or, in other words, a goal that, if surpassed, will provide additional utility. We show, theoretically and empirically, that aspirations provide incentives to exert effort and are correlated with expectations of success. We also show that aspirations are not fixed but can be shaped by early work experiences. These experiences include mentoring and, more important, discrimination — such that facing harassment or demeaning comments (by virtue of one’s gender) early in the career decreases aspirations. This effect of discrimination can have important consequences in terms of promotion since, as our theory suggests, this implies an amplification mechanism that occurs when aspirations are strategically set.

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<sup>1</sup>Catalyst, Women CEOs of the S&P500 (2017)

<sup>2</sup>A current Glance at Women in the Law, American Bar Association (2016)

<sup>3</sup>National Center for Education Statistics, IPEDS Data Center, Fall Staff 2015 Survey (2016)

The legal profession is particularly well suited to understanding the determinants of promotion gaps for several reasons. First, like many other highly skilled professions, it exhibits persistent gender promotion gaps, but unlike many other professions, promotion to partner in the legal profession is well defined and has a similar structure across firms, with the division between partners and non-partners summarizing most of the relevant hierarchy in a firm. Second, the legal profession traditionally evaluates performance using measures that are transparent and homogeneous across firms (hours billed) and effort measures (hours worked). Third, in recent years, male and female lawyers entering private law firms after law school completion are similar on most observable variables (for instance, performing equally well in law school, equally entering top law school programs, similarly obtaining positions in leading law firms), which raises the question of why promotion gaps remain among the younger cohorts.

Using a nationally representative cohort of lawyers who are tracked over twelve years from law school completion, we begin by documenting a significant gender gap in promotions. Twelve years after joining a law firm, women are 13% less likely to become partners than men. This is a sizeable gap when we consider that there is gender equality at the entry level into the partnership track and that the unconditional probability for men to become partners is 52.9%. The gender promotion gap is virtually unaffected when controlling for other pre-existing demographic, as well as educational and firm, characteristics, consistent with the finding that these characteristics, when entering the law profession, are very similar between men and women for a given cohort.

This gender gap in promotion echoes a different gap between men and women in terms of aspirations. We document that, when asked early in their careers about their aspiration to eventually make partner on a scale from one to ten, while 60% of men report having high career aspirations (eight or more) to become partners, only 32% of women report similar aspirations. Similarly, while only 13% of men have low career aspirations (three or less), this is the case for 31% of women. These gender differences in career aspirations explain up to 50% of the gender promotion gap. The gender promotion gap is, therefore, partly driven by a different distribution of aspirations between men and women. However, we show that for a given level of aspirations, men and women have the same chances of promotion – in other words, a female lawyer with high career aspirations has the same chance of being promoted as a male lawyer. An important question, therefore, is why aspiration levels differ between men and women.

To understand the role of aspirations and the mechanisms behind it, we set out an analytical framework to specify testable implications. Aspirations can be described as the

desire to reach an attainable goal. Consistent with this definition, following Genicot and Ray (2017), we define aspirations as a threshold. If the realized outcome crosses the threshold, the individual obtains an additional payoff, increasing the distance between the outcome and the goal. Using this concept of aspirations, we analyze a three-period model. In the first period (early career), aspirations are determined, either exogenously by the environment or endogenously by the lawyer. In the second period (mid-career), the lawyer chooses how much effort to exert. In the final period (later career), promotions are determined.

The model offers three main predictions. First, under broad conditions, aspirations and effort are positively correlated. Higher aspirations create incentives to exert effort to benefit from the additional payoff. Second, higher aspirations should be positively correlated with expectations of success for two reasons: i) higher aspirations generate higher levels of effort, such that the lawyer can rationally expect higher odds of success, and ii) the lawyer strategically sets the aspirations level as a commitment device to incentivize effort – higher chances of success will encourage her to set aspirations higher. Finally, the third prediction is that aspirations are positively correlated with the intrinsic preference for being a lawyer. This is because stronger preferences increase the benefits of using aspirations to encourage effort.

The model also offers insight into how the effect of early work experiences on promotions can be amplified when aspirations are endogenously set as a commitment device. The direct effect of experiences on aspirations influences effort by, for instance, increasing its cost. This in turn feeds back into aspirations being set at a lower level, given the lower benefits of commitment. Moreover, the endogenous setting of aspirations makes the traditional classification of supply-side and demand-side drivers of gender gaps less useful. While aspirations are, strictly speaking, part of the preferences of the lawyer (supply side), they are also sensitive to the workplace environment (demand side).

We empirically explore these predictions in the data. First, we show that higher early career aspirations increase early “inputs” that determine promotion, as described in the analytical model by effort. In particular, high aspirations of becoming a partner are associated with higher effort and personal investment. High-aspiring individuals work longer (regular and weekend) hours, bill more hours, and are less likely to switch firms in their early or mid career. Aspirations also affect other choices, such as the choice of the number of children. We show that women in our sample have an 8% higher likelihood than men of not having children. Moreover, aspirations significantly predict a higher likelihood of having children in the future for male lawyers, while they are uncorrelated in the case of women. This endogenous choice highlights a different effect of children on professional success between

genders. However, conditional on this choice, fertility differences do not explain the gender promotion gap. These results allow us to better understand the channels through which aspirations impact later promotion. Second, career aspirations are also closely connected to the self-reported probability of becoming a partner in a law firm (i.e., the expectation to become a partner). However, aspirations are generally a better predictor of later promotion and contain information that predicts becoming a partner over and above these corresponding self-reported probabilities. Finally, aspirations contain a marked preferences component and are higher among those individuals who report higher levels of satisfaction with being a lawyer at early (and later) stages of their careers.

This first set of results highlights that aspirations summarize a large share of the relevant information about the desire and the commitment to become a partner at a law firm. The gender difference in aspirations after joining a law firm explains approximately half of the later gender promotion gap. This seems at odds with the balanced distribution of characteristics of men and women when joining the firm, and it suggests that the aspiration to become a partner may be changing differentially during the early professional lives of men and women. Although aspirations may reflect some pre-existing unobservable differences in preferences, it is important to determine whether early workplace experiences in the labor market shape promotion aspirations.

In the last part of the paper, we focus on the impact of early employment-related experiences on aspirations. The role of early experiences — of discrimination — within the profession has received little attention in the literature. It is plausible that early experiences can shape career aspirations. There are various forms of discrimination, which we classify as “organizational” and “social” discrimination. Organizational discrimination, in its simplest form, would assign different pay for the same work. In the case of lawyers, it could also be attributed to a senior partner assigning a differential case load assignment to some (equivalently able) lawyers compared with others on the basis of other characteristics, such as gender. Social discrimination, on the other hand, can be thought of as the interaction with colleagues and the corporate culture of the firm. It is often difficult to measure and categorize. It may, for instance, include experiencing harassment and derogatory comments by virtue of one’s characteristics. It might also be reflected, more generally, in the workplace environment. Finally, since junior lawyers are often assigned mentors at an early stage in their careers, we additionally investigate the importance of role models and, in particular, the importance of their level of seniority and gender.

We explore both organizational and social forms of discrimination. We find little evidence that promotions are influenced by explicit or implicit organizational discrimination in



pay, tasks or case assignment. We do, however, find that social discrimination matters, in particular, experiencing demeaning comments or other types of harassment. Among young lawyers, 25% of the women in our sample experience social discrimination early in their careers, compared with only approximately 5% of men. We show that early experiences of discrimination by colleagues strongly affect one's career aspiration to become a partner and, ultimately, are linked to actual future promotion outcomes. We show that these comments are unrelated to the ex ante characteristics of the lawyer targeted but are, indeed, negative shocks that affect aspirations. This is a central result, as it shows that small changes in one's labor market experiences can have strong and persistent effects, particularly due to the amplification effect mentioned above.

Our paper contributes to a growing literature that studies the underrepresentation of women in senior high-skilled positions, frequently referred to as the glass ceiling (e.g., Bertrand and Hallock, 2001; Bertrand et al., 2019). While there is growing literature on gender gaps in wages and the dynamics of the gender wage gap among the high-skilled (Manning and Swaffield, 2008; Bertrand, Goldin and Katz, 2010; Azmat and Ferrer, 2017), there has been relatively less focus on promotion (see Altonji and Blank, 1999, and Bertrand, 2011, for reviews of the literature). The two are highly linked; however, promotion entails a broader set of implications beyond pay. While studies have shown that women are promoted less than men (Cobb-Clark, 2001; Blau and DeVaro, 2007), recent studies by Bosquet, Combes and Garcia-Peñalosa (2018) and Hospido, Laeven and Lamo (2019) find a gender gap in promotion that is no longer significant when accounting for gender differences in promotion seeking. Our study documents a gender gap in promotion that is largely explained by differences in career aspirations, suggesting a mechanism for differential promotion seeking. Studies have shown that the presence of children can be an important obstacle for career progression (see, for instance, Bertrand, 2013). In our study, while men with higher career aspirations are more likely to have children, this effect is absent for women, suggesting that the trade-off between children and career aspirations is more negative for women. Goldin and Rouse (2000) show that gender-based discrimination may also impact promotion decisions. Focusing on early employment experiences, including both organizational and social discrimination, we find that experiencing harassment or derogatory comments by virtue of one's characteristics has an important impact on career aspirations and, subsequently, promotion.

Our study focuses on a cohort of similar individuals simultaneously starting homogeneous jobs. Moreover, both the definition of promotion and the procedure to achieve it are well defined within the profession. We observe detailed information on initial conditions (e.g., educational background and proxies for ability) and lawyers' on-the-job performance, and

we follow each individual in their new position for ten years – including if they decide to leave private law or the legal profession completely. While the findings are highly relevant for other high-skilled professions and sectors, the structure allows us to overcome issues that arise when more broadly examining a population of individuals who can be affected by composition effects and by the lack of comparability of promotions across roles and industries.

Our paper also relates to the theoretical literature of aspiration formation (Ray, 1998; Ray, 2006; Genicot and Ray, 2017) and adaption (Simon, 1957; Selten, 1998; Karandilur et al., 1998), which highlights, mostly in the context of poverty traps, the importance of aspiration gaps. Several studies have empirically examined the effect of educational interventions on the educational aspirations of children from disadvantaged backgrounds (Heckman et al., 2013; Guyon and Hulliary, 2019; and Rizzica, 2019). Recent work by Azmat and Kaufmann (2019) evaluates the importance of one’s environment on adapting educational aspirations and the links between these aspirations and later educational choices. In our study, we elicit aspirations in a very different context of high-achieving young professionals, focusing on gender differences in aspirations. Similar to the existing literature on poverty and education, our results suggest that early interventions in the workplace (either driven by firm policies or public programs) could have a large and long-lasting impact in narrowing gender gaps in promotion.

Our paper highlights the key role played by the aspirations gap. The analysis of aspirations is important not only insofar as they are a good way to aggregate information about individuals’ preferences, expectations and goals but also because they can be influenced and shaped. Policies that shape aspirations (e.g., in education, public perception or internal firm policies) can have a persistent influence on promotion gaps. What aspirations capture, and how they are formed, is key to understanding the “glass ceiling”. Moreover, if policy can affect aspirations, it is a good early signal that policy will potentially be effective.

## 2 Institutional Setting and Data Description

The legal profession is among the highest-paid professions in the U.S., along with physicians and CEOs (National Cross-Industry wage estimates, U.S. Bureau of Labor Statistics), and it constitutes a substantial share of U.S. GDP. Legal expenses account for more than 200 billion dollars, which constituted 1.5% of U.S. GDP (Bureau of Economic Analysis, U.S. Department of Commerce, 2008).

There was a dramatic expansion of the legal profession in the 1980s that attracted a large

number of women into the profession. Women now comprise 50% of law graduates, compared with only 22% in 1980. On entry into the labor market, they constitute approximately 45% of large law firms' associates. Associate lawyers are employees of the firm with the prospect of becoming a partner – they enter the partnership track. Law firm partners are joint owners and business directors of the legal operation. As such, partners share the risks and the decision making of the firm and expect to have, on average, higher earnings than salaried lawyers. Partners also have higher levels of responsibility and are expected to manage the firm and bring business to it. The process of making partner is highly prestigious and often very competitive. In many firms, the associate-to-partner ratios are approximately 2:1. The “up or out policy” is one in which associates who do not make partner are often required to resign from the firm.

As in many high-skilled professions, there is a growing concern about gender earnings and promotion gaps in the legal profession. The gender earnings gap among lawyers persists at approximately 33% (Bureau of Labor Statistics, 2016), with little progress observed over the past two decades. In terms of promotion, across cohorts, currently only 20% of partners are female. However, although these gaps are smaller when we restrict attention to those who graduated in an era with gender equality in law school graduation (as in our data), we continue to observe important and persistent gaps. Within our sample, men have an approximately 13% higher likelihood than women of making partner twelve years after graduation.

Our analysis is conducted using data from *After the JD*, a nationally representative, longitudinal survey of lawyers in the U.S. The *After the JD* study is a project of the American Bar Foundation and other legal associations. Lawyers in the sample are representative of all lawyers first admitted to the bar in the year 2000 and are subsequently followed at five-year intervals. At entry, participants are primarily employed in private practice (54%), as well as in government jobs and nonprofit organizations (25%), private industries other than law firms (18%), and academic institutions (3%). We primarily focus on those who enter into private law, since these are the lawyers who will follow the “partnership track”. We can, however, explore mobility across firms and sectors (within or out of the legal profession), as well as movement out of the labor market (into unemployment or inactivity).

The survey was first conducted in 2002, and the same lawyers were interviewed again in 2007 and then in 2012.<sup>4</sup> The data include information on relevant job characteristics, employment history, education, family background and family status. Importantly, they also

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<sup>4</sup>The response rate in 2002 was approximately 70 percent. Among those responding in 2002, more than 85 percent also responded in 2007, and in 2012, there was a response rate of approximately 80 percent.

include objective measures of performance and hours of work (both regular and additional), as well as detailed information on workplace experiences, career goals and perceptions, and satisfaction. Lawyers are asked, for instance, about their career aspirations and predicted probabilities (expectations) of “making” partner. Given the time frame, we can also observe actual promotion to partner status by 2012.

In Table 1, we report the pre-labor-market and early-labor-market descriptive statistics among the lawyers, separately for men and women. Overall, we find that men and women have observably similar individual characteristics, educational achievement, and early work-related characteristics and experiences. Female lawyers tend to be slightly younger and less likely to be married and have considerably fewer children. With respect to educational achievement (undergraduate college, rank of law school, own rank within law school year, amount of student debt), there is no significant difference. Similarly, with respect to firm characteristics (size of firm, type of organization, proportion of women in the firm), characteristics of mentors (gender, seniority), and the types of tasks (and their degree of responsibility), there is no significant difference.

## **3 Gender Promotion Gaps and Links to Early Aspirations**

### **3.1 Gender Promotion gap**

We begin our analysis by documenting a sizeable gender promotion gap among lawyers twelve years after law school completion. From Column (1) of Table 2, we see that the baseline, unconditional gender promotion gap is on the order of 12.2%, suggesting that women who have been working in law firms have a substantially lower chance than men of making partner. Within a cohort of lawyers on a partnership track in which close to half are women, this suggests that among those who eventually make partner, 36% will be female, compared with 64% male.

While our focus is on individuals within the same profession and sector, carrying similar educational requirements, there may still be heterogeneity within the profession, such that the gap in promotions could potentially be due to ex ante differences in the characteristics of men and women. These differences could be, for instance, the quality of the university attended for undergraduate or law school or differences in sorting across firms. In columns

(2) to (5) of Table 2, we control for individual characteristics, pre-labor-market educational characteristics, and entry-level firm characteristics (Table A1 presents the full set of coefficients). In column (2), when controlling for age and race, we find that the gender promotion gap remains on the order of 12%. When controlling for educational background (university and law school rank, own class rank in law school, the number of job offers, the amount of debt at law school completion) in column (3); marital status, the presence (and age) of children in column (4); and job characteristics (size of firm, type of organization, proportion of women at the firm, the types of tasks) in column (5), the promotion gap continues to hold. In terms of magnitude, the gap actually increases to 13.2% after controlling for job characteristics, suggesting that female lawyers are being matched to firms and tasks with a higher probability of promotion.<sup>5</sup> Throughout the rest of the paper, we include the same broad set of controls as in column (4) in all regressions.

### 3.2 Links to the Aspirations Gap

Turning next to career aspirations, we document another striking gap between male and female lawyers – the gender aspirations gap. In Figure 1, we plot lawyers’ career aspirations by gender. When asked to rate in 2007, on a scale from 1 to 10, their aspirations to eventually become a partner in their firm, we see that 60% of male lawyers answered 8 or higher, compared to only 32% of female lawyers. Similarly, while 13% of men have low aspirations (3 or less), 31% of women report low aspirations. Taking this measure as a continuous outcome, the average gap between women and men is on the order of 50%, a figure comparable to the actual, eventual promotion gap in 2012. These graphical results are confirmed in Table 3, which echoes the analysis for the promotion gap (Table A2 presents the full set of coefficients). The aspiration gap is large and does not vary substantially when adding controls.

Do gender differences in career aspirations by lawyers contribute to differences in eventual promotion? In column (2) of Table 4, we include career aspirations as a continuous variable and in column (3) as a categorical variable in three aspiration bins (low for aspirations between 1 and 3, medium for aspirations between 4 and 7 and high for aspirations between 8 and 10) as a determinant of promotion. We show that career aspirations explain up to 55% of the gender promotion gap. Differences in early aspirations explain a sizeable fraction of the gender promotion gap, reducing it by more than half to 6.2%, which is not significantly different from zero. As aspirations increase, the likelihood of promotion increases linearly

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<sup>5</sup>With respect to individual and firm characteristics, we control for entry-level characteristics, rather than current characteristics, since decisions reflected in the current characteristics could be endogenous to the outcome.

(from column (3)). Relative to the lowest aspiration group, those in the middle (highest) aspiration group have a 16% (36%) higher likelihood of promotion.

Since by examining promotions alone, we capture whether the lawyer was eventually promoted at any firm and not necessarily the firm where she worked when reporting her aspirations, in Table 5, we consider promotion at the same firm or a better firm as the dependent variable. Men and women might differ in how they revise their expectations, and in particular, men might be more willing to seek promotion at a worse firm if unlikely to obtain it at their current workplace. We explore this in Table 5, showing that the promotion gap is sizeable and highly correlated with the aspirations gap. However, the gender promotion gap is smaller, on the order of 8.5% (column (1)), suggesting that men are more likely than women to move to a “worse” firm to be promoted. When controlling for aspirations as a continuous variable in column (2) or as a categorical variable in column (3), the gap falls to 2%, confirming again that the promotion gap is well explained by the aspirations gap. Moreover, in column (4), we interact aspirations with gender, showing that there are no significant differences between genders in the role of aspirations. This is important, as it suggests that the gender promotion gap is largely driven by a different distribution of aspirations between men and women and that for a given level of aspirations, men and women have the same chances of promotion.

## 4 Understanding Aspirations: Analytical Framework

In the previous section, we demonstrated the existence of a substantial aspirations gap between men and women, which helps explain the gender gap in promotions to partner. It is important to understand what determines aspiration differences across individuals. In this section, we provide an analytical framework that presents what aspirations measure, how they affect outcomes, and how they are determined. The proofs are provided in Appendix A2. In the following section, we empirically test the predictions of the model.

Aspirations can be defined as a desire to attain a feasible goal. In that spirit, a common way to model aspirations in the literature is to define them as reference points or thresholds (Genicot and Ray, 2017; Dalton et al., 2014) over some continuous outcome space. If the realized outcome crosses the threshold, the individual obtains an additional payoff, increasing in the extent to which the goal has been surpassed. This modeling strategy accords well with the above definition of aspirations. Aspirations to achieve a given goal make the goal more desirable, but they are only relevant if the goal can be achieved given a reasonable level of

effort and luck.

We adopt this framework in the model presented below. Consider a lawyer at the start of her career, and let  $z \in (0, +\infty)$  be a continuous realized outcome variable at promotion time. The outcome  $z$  can be understood as the quality of the final position obtained (i.e., a composite of being promoted or not, and, for example, at what firm and salary, the number of shares granted, and reputation).<sup>6</sup> Given a realization of  $z$ , the lawyer has the following utility at promotion time:

$$v(z) + v(\max(z - a, 0))$$

where  $a$  measures aspirations. The utility derived from achieving  $z$  is composed of two terms: the direct utility  $v(z)$  and additional utility that depends on whether the goal is surpassed, i.e.,  $z$  exceeds the aspirations  $a$ . In the derivations, we assume the specific functional form  $v(z) = \gamma(1 - e^{-z})$ , where  $\gamma$  measures the strength of preferences. This creates the kink in utility, which we illustrate in Figure 1 where we draw the baseline utility without considering aspirations ( $v(z)$ ) and the total utility ( $v(z) + v(\max(z - a, 0))$ ) for two distinct levels of aspirations.

For a given lawyer with such preferences, we consider a three-period model, where each period can be thought of as corresponding to a different stage in the career. In the first period, corresponding to the start of the career, aspirations are determined, either exogenously (by the work environment, peers or social norms) or endogenously if the lawyer can strategically change them. We discuss these two polar cases later in this section. In the second period, the lawyer decides how much to work, denoted  $h$  (for hours). In the final period, corresponding to the stage of the career when promotions are decided, the outcome  $z$  is determined stochastically as a function of the work done by the lawyer. Specifically,  $z$  follows an exponential distribution of parameter  $\lambda$ ,  $f(z) = \lambda e^{-\lambda z}$ , where  $\lambda$  is a decreasing function of effort  $h$ .<sup>7</sup>

In this environment, we first show the following result:

**Lemma 1** *For a given level of effort  $h$ , the lawyer's utility is decreasing in aspirations  $a$ .*

**Proof:** See Appendix A2.

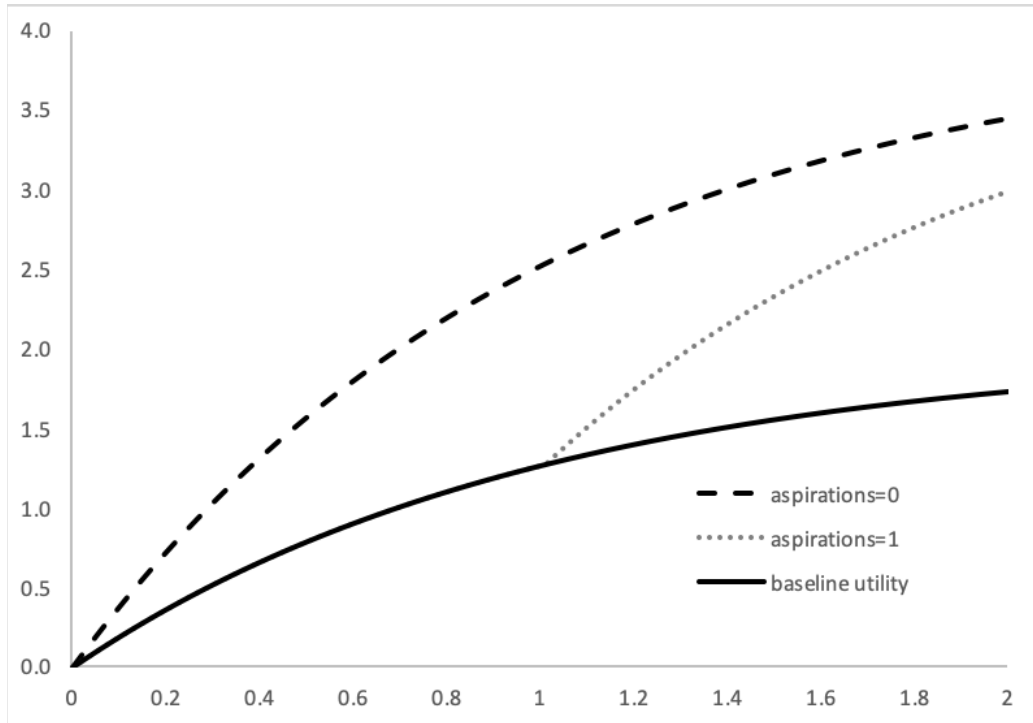
Higher aspirations render the additional payoff  $v(\max(z - a, 0))$  more difficult to attain.

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<sup>6</sup>The model could be easily adapted to the case in which the outcome is simply being promoted or not.

<sup>7</sup>Specifically,  $\frac{1}{\lambda} = h$  at cost  $c(h) = \frac{\alpha}{2}h^2$ .

Figure 1: Representation of the utility function



*Note:* The solid black line plots the baseline utility without aspirations. The dashed line plots utility when aspirations are set at  $a = 0$ . The dotted line plots utility when aspirations are set at  $a = 1$ . All plots are performed for  $\gamma = 2$ .

This property is illustrated in Figure 1, where the utility function for aspirations set at 1 is below the utility function for aspirations set at 0 for all realizations of  $z$ . Hence, if effort is given, lawyers would always prefer to have low aspirations. However, aspirations may still play a role by creating incentives to exert effort. Indeed, we show in Proposition 1 below that as long as aspirations are not excessively high, the effort (or number of hours worked) by the lawyer is increasing in aspirations. The idea being that if aspirations set goals that appear reasonable, they offer the promise of an additional payoff for better outcomes, and this encourages more effort. However, the opposite is true if aspirations are too high, such that the goal appears unrealistic and higher aspirations would discourage effort.

**Proposition 1** *There exists  $\bar{a}$  such that effort  $h$  is increasing in  $a$  if and only if  $a \leq \bar{a}$ .*

**Proof:** See Appendix A2.

Proposition 1 also implies a link between aspirations and expectations, understood here as the expected value of  $z$ . Indeed, when  $a \leq \bar{a}$ , increasing aspirations increases effort and, as a consequence, increases the expected value of  $z$ .



What if individuals can, to some extent, strategically influence their level of aspirations? We consider this possibility in the second part of the model, where we allow the lawyer to set her aspirations in the first period at no direct cost.<sup>8</sup> We further assume that the lawyer exhibits present bias. Specifically, she has beta-delta preferences, with  $\delta = 1$  and  $\beta < 1$ .<sup>9</sup> According to this model, in addition to regular discounting, any payoff received in the future will be discounted by a factor  $\beta$ . This model implies a time-inconsistency problem. From the perspective of period 0, the costs of effort in period 1 and the benefits in period 2 are both discounted by a factor  $\beta$ . However, when the effort decision is made in period 1, costs are not discounted while benefits are discounted at rate  $\beta$ .<sup>10</sup>

In this environment, Proposition 2 presents two main results. First, if the present bias is sufficiently large, the lawyer sets aspirations at a positive level. Moreover, the stronger the preferences for the outcome or the higher the present bias, the higher the aspirations the lawyer will set.

**Proposition 2** *When chosen by the player in period 0, there exists  $\bar{\beta}$  such that aspirations are set strictly positive  $a^* > 0$  if  $\beta \leq \bar{\beta}$ . Furthermore, we have the following proposition:*

1. *effort is increasing in  $a^*$ ;*
2. *if  $\beta \leq \bar{\beta}$ , aspirations  $a$  are increasing in preferences  $\gamma$  and decreasing in  $\beta$ .*

**Proof:** See Appendix A2.

The intuition for this result is the following. If the individual is not present biased, she will make an optimal choice of effort in the second period, and aspirations are, therefore, initially set at their lowest level, since higher aspirations just decrease payoffs according to Lemma 1. However, with present bias, from an ex ante perspective, the lawyer anticipates that she will work an insufficient number of hours in period 1 because effort will involve

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<sup>8</sup>There is an indirect cost of setting higher aspirations, since as shown in Lemma 1, for a given level of effort, they decrease payoffs.

<sup>9</sup>These preferences are such that for a stream of consumption  $(c_t, c_{t+1}, \dots, c_T)$ , the utility at time  $t$  is given by  $U^t(c_t, c_{t+1}, \dots, c_T) = c_t + \beta \sum_{k=1}^{T-t} u(c_{t+k})$ .

<sup>10</sup>There is a very large theoretical literature proposing models of discounting that account for behavioral aspects of intertemporal choice. Prominent among them is the model of hyperbolic discounting (Laibson 1997, O'Donoghue and Rabin 1999, 2001), which we use in this paper. The existence of present bias has been extensively documented in the lab (see Frederick, Loewenstein and O'Donoghue 2002) and more recently in the field (DellaVigna and Malmenider, 2006, Meier and Sprenger, 2010, Augenblick et al., 2015). In particular, Augenblick et al. (2015) document that present bias is particularly relevant for effort allocation, which is also the object of the current paper.

an immediate cost for a delayed benefit. Thus, for a sufficiently high level of present bias, aspirations, even though they are indirectly costly, become useful to encourage future effort. They serve as a commitment device used by a sophisticated agent to overcome her time-inconsistency problem.<sup>11</sup>

Thus, naturally, aspirations will be set higher for more present biased individuals (low  $\beta$ ), as expressed in Proposition 2.2. The literature highlights the fact that women tend to be less present biased than men (e.g., Coller and Williams, 1999). Wilson and Daly (2003) highlight evidence from evolutionary psychology (specifically with regard to mating and reproductive behavior) implying higher discount rates among males. There is similar evidence among children, with boys being less patient (Bettinger and Slonim 2007 and Castillo et. al. 2011). This could therefore suggest a partial explanation for the aspirations gap.

The final result of Proposition 2 shows that aspirations are increasing in  $\gamma$ , the utility derived from the outcome, if  $\beta$  is small enough. The role of  $\gamma$  is a priori ambiguous. A higher  $\gamma$  increases the value of commitment. However, a higher  $\gamma$  also increases the indirect cost of increasing aspirations (making the kink more difficult to reach). The first effect will dominate if the individual is very present biased.

Our analytical framework, therefore, offers three main testable results. Below, we briefly describe them and then empirically test them in the next section:

1. Aspirations and effort are positively correlated. This is always true when aspirations are strategically set (Proposition 2.1), as the individual would never choose aspirations so high that they do not create incentives to exert effort. This is also the case when aspirations are exogenously determined (Proposition 1), as long as they are not too high.
2. Aspirations are positively correlated with expectations of success. This is for two reasons. First, higher aspirations tend to encourage higher effort and thus increase the expectations of success, a direct consequence of Propositions 1 and 2. Second, if lawyers are heterogeneous in their expectations of success, a lawyer who is more hopeful will strategically set higher expectations.

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<sup>11</sup>The literature has distinguished naïve individuals (unaware of their dynamic inconsistency) from sophisticated individuals (O’Donoghue and Rabin 2001). The latter type of person searches for commitment devices to overcome time inconsistency. For instance, there is a literature showing that commitment devices are effective in encouraging savings and reducing loan defaults (Ashraf et al. 2006). In a different domain, DellaVigna and Malmenider (2006) show how gym memberships can work as a commitment to exercise, an activity that is under-performed due to present bias. Alan and Ertac (2015) show that children also use commitment devices. They show that there is no significant difference in the use of commitment devices between boys and girls.

3. Aspirations are positively correlated with preferences. That is, we should observe higher aspirations whenever the utility that an individual enjoys from being a lawyer is higher. We should also observe that the additional utility from becoming a partner should also be higher the higher the aspirations are.<sup>12</sup> This is derived in Proposition 2.

When bringing the model to the empirical evidence, we can also consider how other, exogenous factors may also influence the level of aspirations. These factors may directly change aspirations or, in the setting where aspirations are endogenously chosen, do so by changing the primitives of the model (the preference for higher outcomes, a disutility of effort, or the probability of higher outcomes). While the model does not specify what exogenous factors may influence the level of aspirations, we briefly discuss some dimensions that may matter. Some factors could be contextual and cultural or determined by the direct environment of the individual. For instance, Genicot and Ray (2017) discuss how parents affect the aspirations of their children. Similarly, Azmat and Kaufmann (2019) show how the political environment may change the aspirations to enroll in higher education. More broadly, Ray (2006) introduces the idea of an aspirations window as formed from similar “attainable” individuals. In this paper, we argue that aspirations can be driven by early work experiences and, in particular, experiences that are of a discriminatory nature.

Since aspirations can be partially set exogenously but also partially be the result of a goal-setting strategy, this creates a reinforcing mechanism. Holding aspirations fixed, a change in the work environment can affect the returns to a promotion and the disutility of effort, thereby influencing effort and the probability of being promoted. However, if aspirations are endogenously determined (i.e., as a form of goal setting), they should also react to the new environment and expectations, thereby inducing further changes in effort and the expectation of being promoted. Moreover, it could also be the case that the working environment may directly affect aspirations. Overall, the dual role of aspirations as endogenously set but influenced by external factors may entail that small differences in early work experiences may be amplified via the aspirations channel into large differences in promotion outcomes.

## 5 Understanding Aspirations: Empirical Analysis

In this section, we test whether the three main predictions outlined in the analytical framework empirically hold. In particular, we test i) whether aspirations correlate with the effort

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<sup>12</sup>This is as a result of a higher  $\gamma$  and a steeper region of the utility function

exerted by the lawyer (in Section 5.1), ii) whether aspirations correlate with expectations of promotion (in Section 5.2), and iii) how they relate to satisfaction with being a lawyer (in Section 5.3).

## 5.1 Aspirations and Effort

We first examine the links between aspirations and important labor market “inputs” in early or mid career that are relevant in determining eventual promotion. Factors such as the number of hours worked, the number of hours billed, and the likelihood of changing firms early are likely to be important determinants on the promotion track. The previous section suggested that higher aspirations should induce higher levels of such inputs, summarized in the analytical framework as the effort exerted.

In Figure 3, we graphically show that professional aspirations closely track early inputs (hours billed, hours worked, remaining at the same firm). By grouping aspirations into three bins (low, medium, and high), we see that aspirations are monotonically and strongly positively correlated with the hours worked and hours billed and negatively correlated with the probability of changing firms. This is consistent with the notion that high aspirations affect a lawyer’s effort, productivity and personal commitment to the firm, thus increasing the likelihood of promotion.

This graphical evidence is confirmed in Table 6. In column (1), we show that individuals with high aspirations work significantly more hours. The effect is large – those in the highest aspiration group work 300 more hours per year than those in the lowest aspirations group.<sup>13</sup> The effect is also monotonic, with those reporting mid-level aspirations working 100 more hours than low-aspiration individuals. Similarly, individuals with higher aspirations are significantly more likely to bill hours, as shown in column (2), an effect of similar magnitude. There is also a large effect, visible in column (3), on the hours worked over weekends, especially among those with the highest aspirations. Finally, higher aspirations make it less likely that individuals will leave their current firm. Column (5) shows that all these “inputs” contribute to promotion. We show that an increase in hours billed per week by 1 (an increase of 2% relative to the mean) increases on average the probability of promotion by 5%. The other measures of hours worked have less power in explaining partnership; however, there is a strong correlation between hours billed and worked. Early moves from the firm reduce the chances of ending up a partner by 17%.

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<sup>13</sup>This represents six hours more per week, for an average work week of 50 hours.

Apart from career choices, such as choosing hours or changing firms, aspirations might also affect other decisions, such as the choice of having children. In Table 7, we explore whether aspirations are linked to fertility choices.<sup>14</sup> Column (1) shows that, on average, female lawyers are much less likely to have children than their male counterparts, a difference on the order of 8%. Moreover, higher aspirations are correlated with having children. This, however, conceals key gender differences that we highlight in column (2). While the aspirations of female lawyers do not affect their choice to have children, for male lawyers, aspirations are strongly (positively) correlated with having children. If men and women have a similar desire for children given their level of aspirations, this implies that high-aspiration women make an explicit effort in choosing not to have children. Columns (3) and (4) show that having children does not affect the probability of being promoted, and this is independent of gender. These results suggest that the gender promotion gap is not driven by fertility choices. However, our results also show that men and women are making their fertility decisions differently across aspirations, probably to offset a differential impact of children on career progression.

The evidence presented in this section, therefore, confirms in the data the prediction that aspirations and effort are positively correlated. Theoretically, it is only when aspirations are exogenously determined and too high that this relationship would not hold. Thus, this strong positive correlation can also be viewed as indirect evidence that aspirations are, at least partially, chosen by the lawyers themselves.

## 5.2 Aspirations and Expectations

The second prediction of our analytical framework is that career aspirations and expectations are linked. One of the channels, as highlighted in Section 4, is that higher aspirations encourage higher levels of effort (as shown above) and thus induce individuals to have higher expectations of success.

The top-left panel of Figure 4 illustrates the strong correlation between aspirations and expectations in our data. Lawyers are asked early in their career about how they rated their chances of making partner within their firm. The expectations, which are measured from 0 to 100%, are assigned to bins from 1 to 10. We further define low (30% or below), medium (40% to 70%), and high (80% and above) expectations. Figure 4 shows that the average reported expectation is approximately 72% for those with high aspirations, compared with

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<sup>14</sup>Note that our family controls included in all regressions (married, children and children under 4 years old) are reduced to just *married* for this table only

23% for those with low aspirations.

In Table 8, we measure how much of the gender promotion gap is explained by gender differences in expectations. We perform the equivalent exercise to that performed in Table 4, showing that gender differences in expectations explain an important part of the gender promotion gap. The gap falls from 13% to 9% (column (3)). However, when separately examining aspirations (column (2)) or doing so jointly with expectations (column (4)), we see that aspirations explain the gender promotion gap over and above the effect of the expectations gap. In column (4), when controlling for both expectations and aspirations, the gap falls to 5.9%, suggesting that expectations provide little additional information to explain the promotion gap beyond that explained by differences in aspirations (where the gap is reduced to 6.5% and not statistically significant). Overall, aspirations retain explanatory power even when saturating the model by including expectations and a wide array of observable characteristics.

These results suggest that the respondents may be assessing their expectation of becoming a partner with some error or responding in a biased way.<sup>15</sup> The response by lawyers on their aspiration to become a lawyer seems to contain information that helps to correct these biases. In equilibrium, if aspirations are set optimally as a self-commitment device, they should have predictive power about future promotion outcomes. This result highlights that tracking individual aspirations can be valuable in predicting future outcomes.

### 5.3 Aspirations and Preferences

The final prediction of the model is that aspirations are positively correlated with preferences (i.e., the utility from being a lawyer), as expressed in Proposition 2. In the survey, lawyers are asked about their satisfaction with becoming a lawyer. In Table 9, column (1), we see that among those with the highest early aspirations, later satisfaction (in 2012) is highest. In column (2), we show that satisfaction with the decision to become a lawyer is higher for those who make partner. When we control for both partnership and aspirations (column (3)) and interact partnership and aspirations (column (4)), satisfaction is highest for those who have the highest career aspirations and actually achieve their goal. Controlling for earlier levels of satisfaction with the decision to become a lawyer (in 2007), we see that the coefficient falls from 0.70 to 0.48; however, the effect remains strongly significant. This echoes the findings of the analytical framework, which suggested that individuals deriving the highest utility from

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<sup>15</sup>For example, they may be answering about the possibility of being offered a partnership if they take the necessary steps to do deserve one, even if they have decided not to work for it.

promotion would be the ones strategically setting higher goals. The results in Table 9 also show that the difference in satisfaction between making partner and not making partner is monotonically increasing in aspirations.<sup>16</sup> That is, the additional utility that lawyers enjoy from becoming partners (10 years out) is increasing in their previous aspirations, which is consistent with the idea of aspirations being some form of goal setting or bet with oneself.

## 6 Early Professional Experiences (Discrimination) and Aspirations

In this section, we explore how early workplace experiences may affect aspirations. The analytical framework highlights that there are two sets of factors that can determine the level of aspirations. First, some factors can be defined as endogenous – those that influence the strategic choice of aspirations by the agent to incentivize effort. Second, exogenous environmental factors can also directly influence how aspirations are set. The workplace environment could shift aspirations either because it changes the exogenous factors that affect them (for instance, social norms or peer pressure) or because it affects the endogenous decision about where to set aspirations (for instance, a change in expectations of success).

Given the focus of the paper on gender promotion gaps, we focus our attention on whether aspirations are affected by early experiences of discrimination. There are various forms of discrimination that can be measured in our data. We classify discrimination into “organizational” and “social” discrimination. Organizational (employer) discrimination, in its simplest form, would assign different pay for the same work. Social discrimination, on the other hand, can be thought of as the interactions with colleagues and the corporate culture of the firm. While it is often difficult to measure and categorize discrimination, our data allow us to study these separately. Overall, we find that while there is little evidence for organizational discrimination affecting aspirations or promotion outcomes, social discrimination plays an important role.

Social discrimination may come in many forms. It might be related to the workplace environment, as well as with subtle interactions with colleagues or clients. We measure social discriminatory experiences in 2002, five years before lawyers report their professional aspirations and ten years before promotions are measured. Early in their careers, lawyers

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<sup>16</sup>The point estimates on the utility of not making partner are also decreasing in aspirations (although this trend is not statistically significant), suggesting some form of regret when aspirational objectives are not met

are asked about whether they have experienced demeaning comments or harassment in the workplace by virtue of their demographics. By 2002, 25% of women reported having such experiences, compared with only 6% of men. These experiences, which are gender specific, are not driven by other characteristics of the lawyer that we observe, such as university rank or grades (as shown in Table A3). They can be considered random negative shocks of being paired with discriminatory colleagues.

In Table 10, we explore the effects of demeaning comments and harassment, restricting the analysis to the subset of female lawyers who are so exposed. Columns (1) and (2) show that experiencing social discrimination leads to lower aspirations to be promoted and a lower probability of being effectively promoted ten years after experiencing it. Moreover, in column (3), we show that most of the effect of demeaning comments and harassment on promotion is incorporated into the change in aspirations induced by them. That is, aspirations measure well the effect of discriminatory comments on outcomes and are potentially mediating between the two. Once we control for professional aspirations, the direct effect of demeaning comments and harassment on promotions is not statistically significant. While we cannot make formal claims of causality, these experiences of harassment can reasonably be considered random adverse shocks, as they are uncorrelated with ex ante characteristics of the lawyers (as shown in Table A1).

The importance of social discrimination experiences on aspirations and promotion, in combination with the idea that aspirations can serve as a self-commitment device, indicates that the determination of aspirations can amplify the effect of early discrimination experiences on promotion outcomes. To illustrate this idea, one can think of a modified version of the model in Section 4 in which workplace discrimination increases the disutility of exerting effort or decreases the utility of a given promotion outcome. If a lawyer experiences discrimination after aspirations have been set, it will directly affect promotion outcomes via lower effort. However, if a lawyer experiences discrimination before aspirations have been set, discrimination will affect the effort devoted to becoming a partner not only directly but also indirectly via the setting of lower aspirations. This is an important result, as it highlights that small interventions in the workplace that have an impact on aspirations can have a larger long-term effect on outcomes if they are performed early on, before aspirations are formed.

Next, we turn to measures of organizational discrimination in Table 11. We explore various measures of potential organizational discrimination. First, we focus on the most straightforward measure of whether male and female lawyers have a different return to the same performance. In column (1), we show that the number of hours billed (performance)



is positively correlated with the probability of promotion. However, there is no differential impact by gender, suggesting that men and women are not rewarded differently for a given hour billed in terms of promotion. Similarly, we do not see a gender differential for returns to hours worked. That is, *ceteris paribus*, the promotion impact of higher productivity seems to be the same for men and women. Second, we examine several other explicit or implicit ways in which an employer might discriminate against a lawyer. At an early stage in their career, junior lawyers are supervised by more senior lawyers. These senior lawyers could potentially “interfere” with the number of hours that associate lawyers bill, such that there could be scope for discrimination. Moreover, lawyers could receive more or fewer case assignments at the discretion of their more senior colleagues. We investigate the importance of case assignment for promotion and whether receiving enough assignments differs by gender. We also investigate whether seniors “write-down” hours billed (i.e., not awarding associate lawyers full credit for the hours that they bill) differently by gender. Overall, we do not find gender differences in either of these measures on promotion (as shown in columns (3) to (6)).

We end this section by examining a different dimension of early work experience – the interaction with the mentor in the firm. Junior lawyers are often assigned mentors during the early stage of their career. In the data, we observe both the gender of the mentor and the level of seniority. Table 12, column (1) shows that having a senior mentor is strongly correlated with having high career aspirations. This is the case for both male and female lawyers. Column (2) shows, however, that the mentor being a woman is not correlated with aspirations, and this is independent of the gender of the lawyer. This suggests that there is no strong positive evidence of having female mentors acting as role models for more junior women. The effect of having a senior mentor is correlated with the probability of becoming a partner, and although part of this effect could be causal, there is also the possibility that some of this correlation is driven by positive sorting on unobservable characteristics.

Overall, the results in this section show that aspirations can be affected by early workplace experiences and, in particular, by early experiences of social discrimination in the form of harassment or demeaning comments by colleagues. We do not find, however, evidence of firms engaging in organizational discrimination explaining the average gender promotion gap in our sample.

## 7 Conclusions

We show how an important fraction of the gender promotion gap in the legal profession can be explained by different aspirations to become a partner. Men and women are largely comparable on observable characteristics when they join the legal profession. However, early in their career, men report higher aspirations to become partners than women. This differential in aspirations is linked to the gender promotion gap twelve years after entering the profession, even after controlling for a comprehensive set of firm and individual characteristics and for self-reported probabilities of being promoted. This result highlights that understanding aspirational gaps is important to explain the gender “glass ceiling”.

Our results suggest an important potential amplification mechanism. Small differences in preferences or expectations may affect professional aspirations, which can then affect the individual effort and commitment to being promoted, which can then feed back into professional expectations or personal goals. This amplification mechanism also implies that small changes in how firms deal with their employees very early in their careers can have large and long-lasting effects on their performance and promotion chances. Moreover, individual aspirations retain predictive power for future actual promotions after controlling for self-declared expectations of being promoted, suggesting that measuring aspirations can also be an important tool to measure future outcomes and the early impact of policies or interventions.

We show that experiences do indeed play an important role. Early discriminatory experiences in the workplace can shape aspirations and have a long-term professional influence. In particular, harassment or discriminatory experiences in the workplace measured just after lawyers have joined the firm have an effect on later professional aspirations. This change in professional aspirations predicts whether lawyers will be promoted ten years later. Interestingly, we find that discrimination and harassment by coworkers affect aspirations, while there is no evidence of systematic discrimination on the procedures that firms use to assign cases or workloads. This result poses a challenge for the internal policies of the firms that attempt to eliminate gender discrimination and to improve the aspirations of young professional women. The forms of social discrimination that are more harmful to women’s aspirations are precisely those about which information is softer and more difficult to obtain, in contrast with organizational discrimination, for which hard information is easier to obtain and on which firm policies are more likely to have an impact.

The channel linking aspirations to promotion could be relevant for other types of promotion gaps. We show that the link between the promotion gap and aspirations can also

be found when performing the same analysis based on race. In Table 13, we see that there is a promotion gap of 14 % (after controlling for other characteristics) between white and non-white lawyers. As in the case of gender, controlling for aspirations significantly decreases the promotion gap. Although to a lesser extent than for gender, the gap is reduced by approximately one-third. Given that we also show that aspirations can be quite sensitive to early professional experiences, this suggests that actions intended to reduce aspiration gaps can be an important policy instrument.

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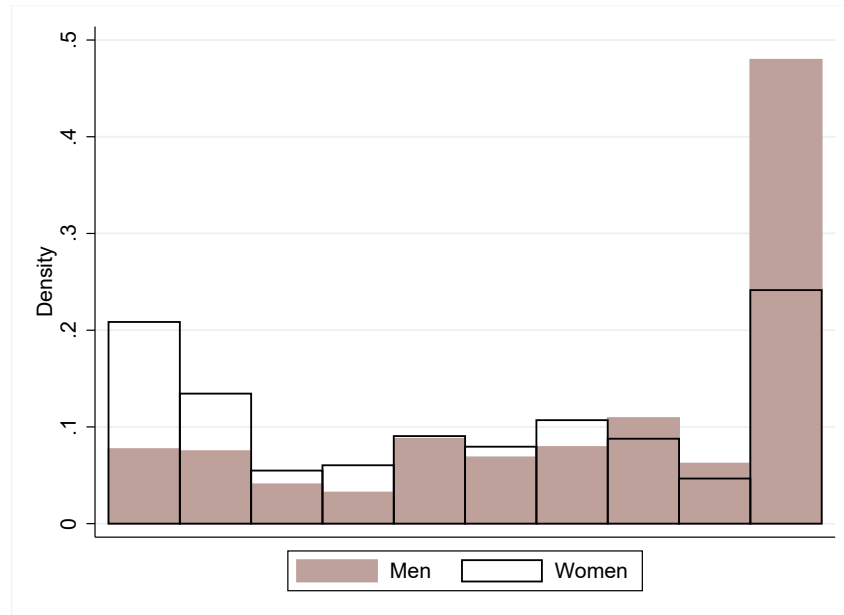
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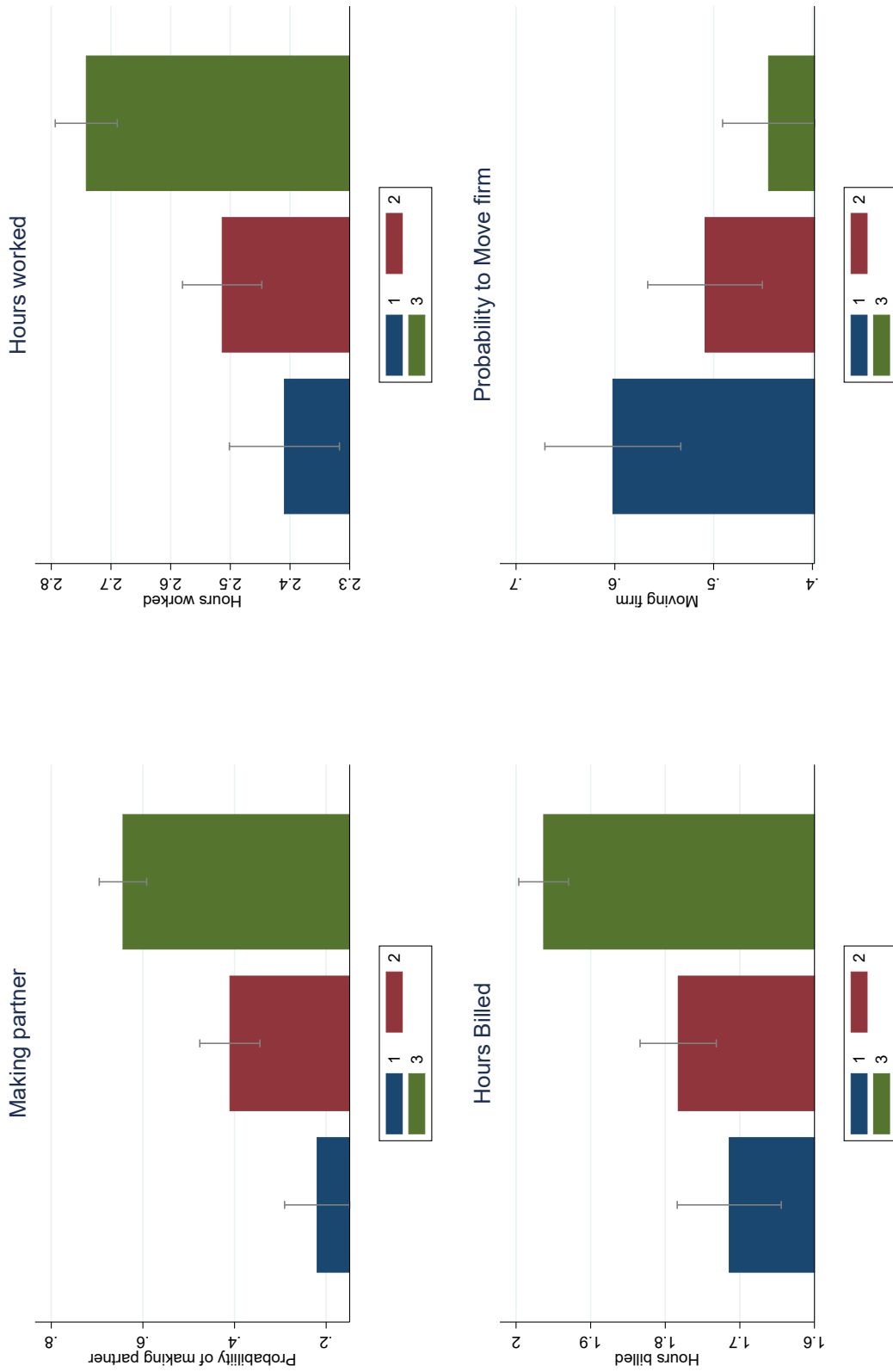
## 8 Tables and Figures

Figure 2: Career (Partnership) Aspirations (by gender)



*Note:* The figure plots, by gender, the responses to the question: “How strongly do you aspire to attain an equity partner position within your firm?” This is on a scale from 1 (Not at all) to 10 (Very high). We restrict the data to individuals who are observed billing at least one hour in our data. The figure compares aspirations for men and women. Aspirations are measured on a 10-point Likert scale.

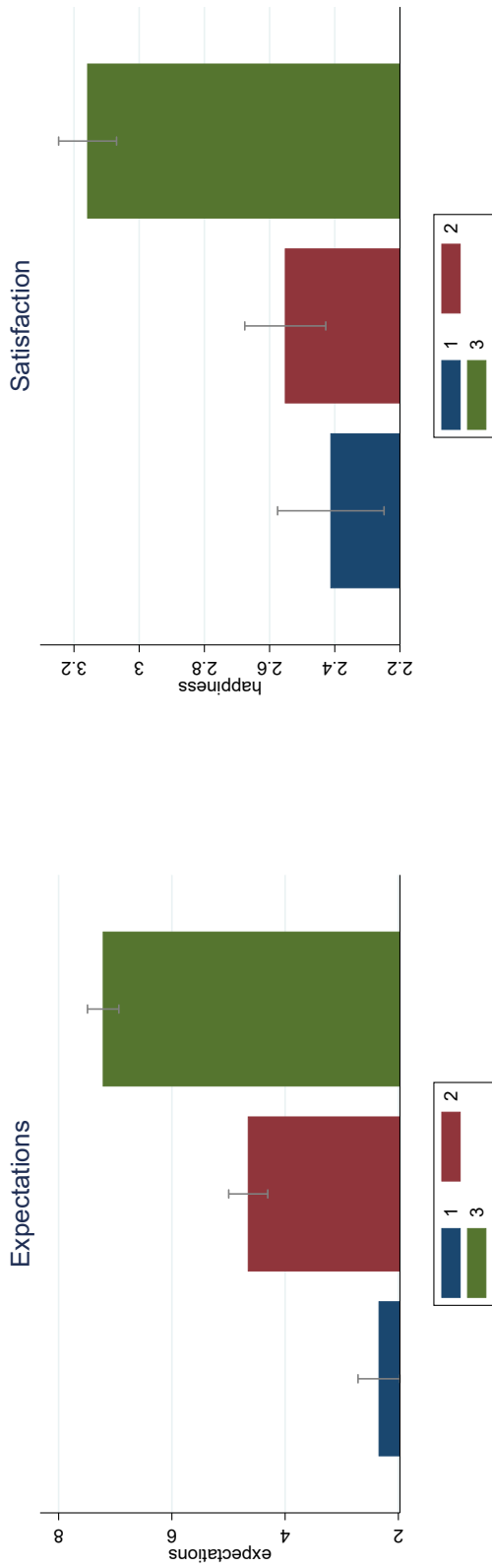
Figure 3: Aspirations and Effort



Note: The figure plots, by career aspiration groups (low, medium, high), the following: in the top-left panel, we plot the proportion of individuals who are promoted to partner. In the top right, we plot the number of annual hours worked (expressed in thousands of hours). In the bottom left, we plot the number of annual hours billed (expressed in thousands of hours). In the bottom right, we plot the probability of changing firms within the first five years. We restrict the data to individuals who are observed billing at least one hour over the sample period.

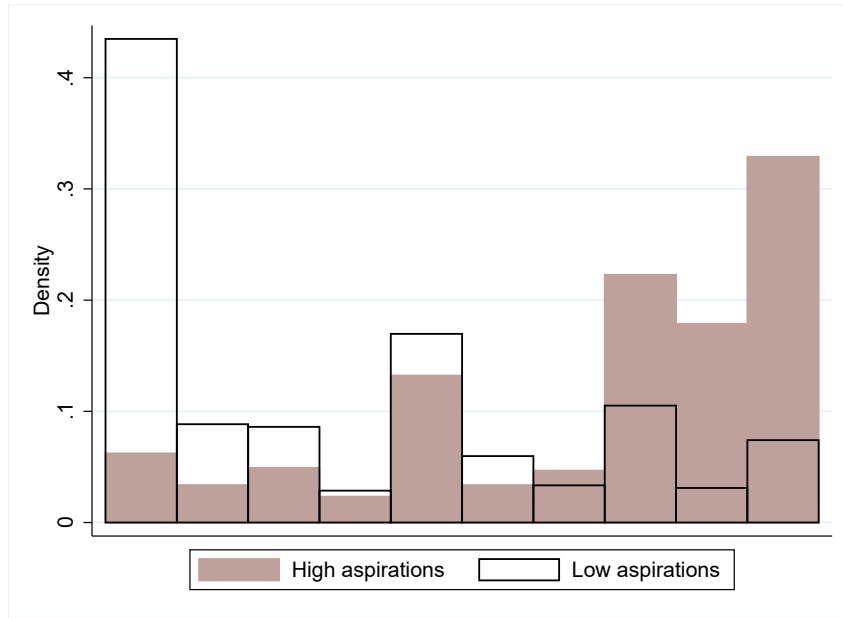


Figure 4: Aspirations, Expectations and Preferences



*Note:* The figure plots, by career aspiration groups (low, medium, high), the following: In the left panel, we plot the expectations of being promoted to partner (“How would you rate your chances, as a percentage ranging from 0 to 100, of attaining each of the following positions in your firm?”). We bin the responses into deciles). In the right panel, we plot preferences regarding being a lawyer (“How satisfied are you with your decision to become a lawyer?”; this is on a scale from 1 to 5). We restrict the data to individuals who are observed billing at least one hour over the sample period.

Figure 5: Expectations by Aspiration



*Note:* The figure plots, by high or low aspirations, expectations of being promoted to partner. We restrict the data to individuals who are observed billing at least one hour over the sample period. We plot the average expectation of making law partner across the 10 bins of aspirations.

Table 1: Descriptive Statistics

	Women		Men		Difference	
	mean	sd	mean	sd	b	t
Age	30.11	4.52	31.07	4.50	0.96	(2.17)
White	0.82	0.38	0.88	0.33	0.06	(1.58)
Married	0.57	0.50	0.65	0.48	0.08	(1.58)
No. Children	0.26	0.64	0.55	0.94	0.29	(3.84)
Child under 4 yrs.	0.08	0.28	0.20	0.40	0.12	(3.71)
Rank UG Uni.	12.86	3.71	12.50	3.49	-0.37	(-1.03)
Rank Law School	4.95	0.99	4.90	0.98	-0.05	(-0.52)
Rank in LS Class	2.22	0.98	2.36	1.09	0.15	(1.46)
Job Offers	2.78	2.36	2.73	2.67	-0.05	(-0.21)
Debt after LS	4.69	2.25	4.83	2.28	0.14	(0.62)
Size Firm	278	527	239	336	-38	(-0.84)
Private Firm	0.96	0.20	0.95	0.22	-0.01	(-0.38)
Av High Resp. Tasks	2.37	0.86	2.50	0.85	0.12	(1.47)
Av Low Resp. Tasks	1.95	0.63	1.99	0.56	0.04	(0.66)
Share Women firm	33.56	17.13	27.86	19.67	-5.69	(-3.19)
Senior Mentor	0.68	0.47	0.64	0.48	-0.05	(-1.01)
Male Mentor	0.60	0.49	0.67	0.47	0.07	(1.54)
Sen.Male Mentor	0.53	0.50	0.59	0.49	0.06	(1.17)
Comments	0.24	0.43	0.06	0.25	-0.18	(-4.94)
Observations	303		376		679	

*Note:* We restrict the data to individuals who are observed billing at least one hour over the sample period. *White* takes value one if the lawyer is Caucasian and zero if the lawyer is a member of a minority group (Black, Hispanic, Native American and Asian). *Rank undergrad uni* and *Rank law school* are bracketed rankings based on the 1996 and 2003 U.S. News reports for undergraduate and law school studies, respectively. Both variables are redefined such that the higher the value is, the more prestigious the educational institution. *Rank in class* is the lawyer's rank among the own cohort in law school. *Job offer* represents the number of job offers received after graduating and before taking the current position. *Debt* is the amount of debt accumulated by the lawyer as of 2002. *Married* takes value one if the lawyer is married in 2002, remarried after a divorce or in a domestic partnership and zero if single, divorced or separated, widowed, or other. *No. Children* and *Child Aged 4* refers to the lawyer's number of children and if they have a child under age 4 in 2002, respectively. *Size of Firm* is the number of individuals employed in the organization in 2002. *Private Firm* takes value one if the lawyer works in a private law firm and zero if the lawyer works for another organization in 2002. *Av High Resp Tasks* is the average score on high-reasonability tasks in

2002. *Av Low Resp Tasks* is the average score on high-reasonability tasks in 2002. *Share of women firm* is the proportion of women in the firm in 2002. *Senior Mentor* refers to whether the lawyer's mentor is a law firm partner. *Male Mentor* refers to whether the lawyer's mentor is male. *Comments* refers to whether, in the last two years (as measured in 2002), the lawyer experienced demeaning comments or other types of harassment by virtue of his or her race, religion, ethnicity, gender, disability, or sexual orientation.

Table 2: Gender Promotion Gap

	Promoted to Partner				
	(1)	(2)	(3)	(4)	(5)
Female	-0.122*** (0.038)	-0.120*** (0.039)	-0.124*** (0.039)	-0.124*** (0.039)	-0.132*** (0.040)
Constant	0.541*** (0.026)	0.853*** (0.163)	1.351*** (0.235)	1.341*** (0.239)	0.820 (0.520)
Individual controls	No	Yes	Yes	Yes	Yes
Education controls	No	No	Yes	Yes	Yes
Family controls	No	No	No	Yes	Yes
Firm controls	No	No	No	No	Yes
Observations	680	679	679	679	679
Adjusted $R^2$	0.013	0.022	0.042	0.038	0.044

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. In all columns, the dependent variable takes value 1 if the individual made partner by 2012 and 0 otherwise. Individual controls include *Female*, *Age* and race dummies (*White (omitted category)*, *Black*, *Hispanic*, *Indian*, *Asian*, *Others*). Education controls include *Rank UG Uni.*, *Rank Law School*, *Rank in LS Class*, *Job Offers*, and *Debt after LS*. Family controls include *Married*, *Children*, and *Child Aged 4*. Firm controls include *Share of women firm*, separate dummies for *Types of organization* (solo practice, private law firm, federal government, state or local government, legal services or public defender, public interest organization, educational institution, professional service firm, other Fortune 1000 industry/service, other business/industry, labor union, trade association, others), separate dummies for *Size of firm* (size of the organization, in bins, 0-5, 6-10, 11-25, 25-50, 51-100, 101-150, 151-200, 201-250, 251-500, 501-1000, and 1000+), separate dummies for *Types of tasks* (for each of the following, lawyers are asked about their involvement on a scale from 1 (None) to 5 (All): keeping the client updated, being involved in formulating strategy, traveling to make court appearances or to meet clients, or holding face-to-face meetings with clients, and *Tenure at firm*). For further definitions of the variables, see Table 1.

Table 3: Gender Aspirations Gap

	Career Aspirations				
	(1)	(2)	(3)	(4)	(5)
Female	-1.699*** (0.245)	-1.642*** (0.248)	-1.614*** (0.249)	-1.524*** (0.251)	-1.586*** (0.254)
Constant	7.366*** (0.164)	7.402*** (0.905)	10.202*** (1.387)	10.521*** (1.403)	5.548* (3.218)
Individual controls	No	Yes	Yes	Yes	Yes
Education controls	No	No	Yes	Yes	Yes
Family controls	No	No	No	Yes	Yes
Firm controls	No	No	No	No	Yes
Observations	680	679	679	679	679
Adjusted $R^2$	0.065	0.067	0.084	0.088	0.120

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. *Career Asp.* refer to how strongly the lawyer aspires to obtain partnership. The variable takes values from 1 to 10, where 1 represents not at all and 10 represents very high. For definitions of the variables, see Table 2.

Table 4: Gender Promotion Gap and Aspirations

	Promoted to Partner		
	(1)	(2)	(3)
Female	-0.132*** (0.040)	-0.065 (0.040)	-0.065 (0.040)
Career Asp.		0.043*** (0.006)	
Mid Aspirations			0.161*** (0.055)
High Aspirations			0.361*** (0.053)
Constant	0.820 (0.520)	0.535 (0.493)	0.691 (0.503)
Observations	679	679	679
Adjusted $R^2$	0.044	0.109	0.114

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. In all columns, the dependent variable takes value 1 if the individual made partner by 2012 and 0 otherwise. *Career Asp.* refer to how strongly the lawyer aspires to attain partnership within his or her firm. The variable takes values from 1 to 10, where 1 represents not at all and 10 represents very high. *Mid aspirations* takes aspiration values from 3 to 7, and *High aspirations* takes aspiration values of 8 or more. The omitted category is *Low aspirations*, which takes aspiration values of less than 3. All columns include *Individual, Education, Family* and *Firm* controls. For definitions of the variables, see Table 2.

Table 5: Gender Promotion Gap and Aspirations: At Same (or Better) Firm

	Promoted to Partner in Same (or Better) Firm			
	(1)	(2)	(3)	(4)
Female	-0.085** (0.038)	-0.023 (0.038)	-0.024 (0.038)	-0.047 (0.086)
Career Asp.		0.039*** (0.006)		
Mid Aspirations			0.149*** (0.052)	0.112 (0.082)
High Aspirations			0.327*** (0.050)	0.316*** (0.075)
Female $\times$ Mid. Asp				0.064 (0.106)
Female $\times$ High. Asp				0.010 (0.101)
Constant	0.340 (0.487)	-0.064 (0.363)	0.220 (0.473)	0.087 (0.464)
Observations	679	679	679	679
Adjusted $R^2$	0.035	0.096	0.100	0.094

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. In all columns, the dependent variable takes value 1 if the individual is promoted to partner by 2012 and 0 otherwise at the firm where he or she was employed in 2007 or at a firm that is larger. All columns include *Individual*, *Education*, *Family* and *Firm* controls. For definitions of the variables, see Tables 2 and 4.



Table 6: Aspirations and Effort

	(1)	(2)	(3)	(4)	(5)
	Hours Worked	Hours Billed	Hours Weekend	Move Firm	Promoted to Partner
Mid Aspirations	0.107* (0.055)	0.088** (0.038)	0.299 (0.353)	-0.063 (0.046)	
High Aspirations	0.309*** (0.053)	0.244*** (0.037)	0.824** (0.344)	-0.131*** (0.045)	
Hours Worked					0.003 (0.002)
Hours Billed					0.184*** (0.055)
Hours Weekend					-0.000 (0.007)
Move Firm					-0.174*** (0.043)
Constant	2.921*** (0.568)	1.957*** (0.346)	3.070 (3.036)	0.526 (0.478)	0.555 (0.499)
Observations	917	884	864	922	600
Adjusted $R^2$	0.115	0.180	0.026	0.099	0.084

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. *Hours worked* is the annual number of hours worked (expressed in thousands of hours) in 2007. *Hours Billed* is the annual number of hours billed (expressed in thousands of hours) in 2007. *Hours worked weekends* is the annual number of hours worked on weekends (expressed in thousands of hours) in 2007. *Move firm* is a dummy variable taking value 1 if the individual moved firm before 2007. *Promoted Partner* is a dummy variable taking value 1 if the individual made partner by 2012. All columns include *Individual*, *Education*, *Family* and *Firm* controls. All columns include *Individual*, *Education*, *Family* and *Firm* controls. For definitions of variables, see Tables 2 and 4.

Table 7: Aspirations and Children

	(1)	(2)	(3)	(4)
	Children	Children	Promoted to Partner	Promoted to Partner
Mid Aspirations	0.082** (0.042)	0.108* (0.065)		
High Aspirations	0.068* (0.040)	0.161*** (0.059)		
Female	-0.078** (0.031)	0.018 (0.066)	-0.134*** (0.040)	-0.166*** (0.057)
FemalexMid. Asp		-0.024 (0.084)		
FemalexHigh. Asp		-0.197** (0.080)		
Children			-0.011 (0.046)	-0.041 (0.059)
FemalexChildren				0.062 (0.079)
Constant	0.057 (0.358)	-0.021 (0.362)	1.300*** (0.432)	1.288*** (0.433)
Observations	922	922	679	679
Adjusted $R^2$	0.266	0.272	0.046	0.045

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. *Children* refers to whether the lawyer has children. *Promoted Partner* is a dummy variable taking value 1 if the individual made partner by 2012. All columns include *Individual*, *Education*, *Family* and *Firm* controls. All columns include *Individual*, *Education*, *Married* and *Firm* controls. For definitions of variables, see Tables 2 and 4.

Table 8: Aspirations and Expectations

	Promoted to Partner			
	(1)	(2)	(3)	(4)
Female	-0.132*** (0.040)	-0.065 (0.040)	-0.090** (0.039)	-0.059 (0.040)
Mid Aspirations		0.161*** (0.055)		0.102* (0.057)
High Aspirations		0.361*** (0.053)		0.236*** (0.060)
Mid Expectations			0.173*** (0.049)	0.119** (0.052)
High Expectations			0.344*** (0.048)	0.232*** (0.054)
Constant	0.820 (0.520)	0.691 (0.503)	0.716 (0.501)	0.667 (0.497)
Observations	679	679	679	679
Adjusted $R^2$	0.044	0.114	0.115	0.136

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. In all columns, the dependent variable takes value 1 if the individual made partner by 2012. *Expectations* refer to the lawyers' perceived probability of obtaining partnership (they are asked how they rate their chances, as a percentage ranging from 0 to 100, of attaining partnership at their firm. We bin the responses into 10 bins). *Mid expectations* takes expectations values from 3 to 7, and *High expectations* takes expectations values of 8 or more. The omitted category is *Low expectations*, which takes expectations values of less than 3. All columns include *Individual*, *Education*, *Family* and *Firm* controls. For definitions of the variables, see Tables 2 and 4.

Table 9: Aspirations and Preference to be Lawyer

	Preferences 2012					
	(1)	(2)	(3)	(4)	(5)	(6)
Mid Aspirations	0.064 (0.112)		0.030 (0.116)	-0.031 (0.137)	-0.023 (0.141)	-0.038 (0.121)
High Aspirations	0.449*** (0.105)		0.366*** (0.114)	0.163 (0.139)	0.121 (0.148)	-0.163 (0.128)
Promoted to Partner		0.235*** (0.082)	0.127 (0.086)	-0.311 (0.223)	-0.321 (0.230)	-0.204 (0.192)
Mid Asp*Partner				0.362 (0.266)	0.315 (0.274)	0.167 (0.230)
High Asp*Partner				0.618** (0.253)	0.706*** (0.261)	0.477** (0.220)
Pref. 2007						0.559*** (0.036)
Constant	2.620*** (0.087)	2.762*** (0.056)	2.627*** (0.093)	2.718*** (0.102)	4.482*** (1.105)	1.900** (0.821)
Observations	678	657	657	657	656	626
Adjusted $R^2$	0.035	0.011	0.033	0.039	0.047	0.337

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. In all columns, the dependent variable *Preference 2012*, measures how satisfied the respondents are with their decision to become a lawyer (on a scale from 1 to 5). All columns include *Individual, Education, Family* and *Firm* controls. *Pref. 2007* measures lawyers' satisfaction with the decision to become a lawyer as of 2007. For definitions of the variables, see Tables 2 and 4.

Table 10: Social Discrimination (Female Lawyers Only)

	(1)	(2)	(3)
	Career Asp.	Promoted to Partner	Promoted to Partner
Comments	-1.084** (0.538)	-0.182** (0.079)	-0.122 (0.075)
Mid Aspirations			0.270*** (0.080)
High Aspirations			0.438*** (0.083)
Constant	0.621 (5.331)	1.083 (0.786)	1.098 (0.747)
Observations	251	251	251
Adjusted $R^2$	0.099	0.107	0.209

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. *Comments* refer to whether the lawyer experienced demeaning comments or other types of harassment in the last two years (as measured in 2002) by virtue of their race, religion, ethnicity, gender, disability, or sexual orientation. All columns include *Individual, Education, Family* and *Firm* controls. For definitions of the variables, see Tables 2 and 4.

Table 11: Organizational Discrimination

	Promoted to Partner					
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.095** (0.042)	-0.148 (0.186)	-0.123*** (0.040)	-0.112** (0.046)	-0.135*** (0.040)	-0.144*** (0.043)
Hours Billed	0.208*** (0.051)	0.195*** (0.067)				
Hours Billed*Female		0.029 (0.099)				
Not Enough Assignments			-0.208*** (0.046)	-0.188*** (0.062)		
Not Enough*Female				-0.042 (0.090)		
Hours Discounted					-0.152*** (0.058)	-0.179** (0.076)
Hours Discounted*Female						0.062 (0.113)
Constant	0.566 (0.523)	0.586 (0.527)	0.978* (0.513)	0.991* (0.514)	0.872* (0.517)	0.850 (0.519)
Observations	641	641	679	679	679	679
Adjusted $R^2$	0.059	0.057	0.073	0.072	0.053	0.052

*Note:* \* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. *Not Enough Assignments* takes value 1 if the lawyer reports that not enough assignments are the reason that why he or she had difficulty meeting billables and 0 otherwise. *Partner Discounted Hours* takes value 1 if the lawyer reports that partner-discounted hours (or a lack of full credit) is the reason that he or she had difficulty meeting billables and 0 otherwise. All columns include *Individual, Education, Family* and *Firm* controls. For definitions of the variables, see Tables 2 and 4.

Table 12: Role Models

	(1)	(2)	(3)	(4)
	Career Asp.	Career Asp.	Promoted to Partner	Promoted to Partner
Female	-1.610*** (0.252)	-1.608*** (0.473)	-0.132*** (0.040)	-0.112 (0.076)
Senior Mentor	1.781*** (0.436)	1.914*** (0.681)	0.127* (0.070)	0.085 (0.109)
Male Mentor	0.433 (0.542)	0.456 (0.721)	-0.029 (0.087)	-0.011 (0.116)
Sen.Male Mentor	-0.875 (0.667)	-1.046 (0.954)	0.022 (0.107)	0.064 (0.153)
FemalexSen. Mentor		-0.209 (0.883)		0.061 (0.142)
FemalexMale Mentor		-0.050 (1.076)		-0.041 (0.173)
FemalexSen.Male Mentor		0.301 (1.348)		-0.062 (0.217)
Constant	5.679* (3.161)	5.729* (3.184)	0.779 (0.508)	0.743 (0.512)
Observations	679	679	679	679
Adjusted $R^2$	0.152	0.148	0.053	0.049

*Note:*\* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. *Senior Mentor* refers to whether the lawyer's mentor is a law firm partner. *Male Mentor* refers to whether the lawyer's mentor is male. All columns include *Individual*, *Education*, *Family* and *Firm* controls. For definitions of the variables, see Tables 2 and 4.

Table 13: Race Promotion Gaps

	Promoted to Partner		
	(1)	(2)	(3)
White	0.140*** (0.051)	0.101** (0.049)	0.105** (0.049)
Career Asp.		0.042*** (0.006)	
Mid Aspirations			0.152*** (0.055)
High Aspirations			0.352*** (0.053)
Constant	0.683 (0.519)	0.479 (0.502)	0.589 (0.503)
Observations	679	679	679
Adjusted $R^2$	0.052	0.117	0.119

*Note:*\* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level. All columns include *Individual, Education, Family* and *Firm* controls. For definitions of the variables, see Tables 2 and 4.



## 9 Appendix

Table A1: Promotion gaps

	(1)	(2)	(3)	(4)	(5)
	Promoted to Partner	Promoted to Partner	Promoted to Partner	Promoted to Partner	Promoted to Partner
Female	-0.122*** (0.038)	-0.120*** (0.039)	-0.124*** (0.039)	-0.124*** (0.039)	-0.132*** (0.040)
Age		-0.008* (0.005)	-0.011** (0.005)	-0.011** (0.005)	-0.010* (0.005)
Black		-0.105 (0.084)	-0.087 (0.085)	-0.082 (0.086)	-0.093 (0.090)
Hispanic		-0.177** (0.075)	-0.137* (0.078)	-0.132* (0.078)	-0.151* (0.082)
Indian		-0.004 (0.203)	0.014 (0.203)	0.010 (0.203)	0.020 (0.209)
Asian		-0.080 (0.074)	-0.086 (0.075)	-0.083 (0.075)	-0.096 (0.078)
Rank UG Uni.			-0.007 (0.006)	-0.007 (0.006)	-0.005 (0.006)
Rank Law School			-0.011 (0.020)	-0.011 (0.021)	-0.019 (0.023)
Rank in LS Class			-0.090*** (0.027)	-0.089*** (0.027)	-0.066** (0.029)
Job Offers			0.004 (0.008)	0.003 (0.008)	0.001 (0.009)
Debt after LS			-0.002 (0.009)	-0.002 (0.009)	-0.004 (0.009)
Married				0.024 (0.045)	-0.006 (0.047)
No. Children				-0.006 (0.035)	-0.000 (0.036)
Child Aged $\geq 4$				0.004 (0.088)	0.011 (0.090)
Constant	0.541*** (0.026)	0.812*** (0.141)	1.297*** (0.216)	1.286*** (0.219)	0.772 (0.511)
Observations	680	679	679	679	679
Adjusted $R^2$	0.013	0.022	0.042	0.038	0.044

*Note:*\* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level.

Table A2: Aspiration gaps

	(1)	(2)	(3)	(4)	(5)
	Career Asp.	Career Asp.	Career Asp.	Career Asp.	Career Asp.
Female	-1.699*** (0.245)	-1.642*** (0.248)	-1.614*** (0.249)	-1.524*** (0.251)	-1.586*** (0.254)
Age		0.002 (0.029)	-0.014 (0.030)	-0.042 (0.032)	-0.023 (0.032)
Black		-1.025* (0.542)	-0.956* (0.549)	-0.953* (0.552)	-0.912 (0.564)
Hispanic		-0.792 (0.483)	-0.834* (0.498)	-0.817 (0.502)	-0.693 (0.516)
Indian		-1.094 (1.304)	-0.781 (1.302)	-0.709 (1.301)	0.115 (1.317)
Asian		-0.258 (0.478)	-0.320 (0.480)	-0.325 (0.481)	-0.135 (0.489)
Rank UG Uni.			-0.018 (0.039)	-0.018 (0.039)	-0.004 (0.040)
Rank Law School			-0.411*** (0.131)	-0.383*** (0.132)	-0.361** (0.143)
Rank in LS Class			-0.194 (0.174)	-0.135 (0.176)	-0.033 (0.185)
Job Offers			0.136*** (0.052)	0.137*** (0.052)	0.137** (0.054)
Debt after LS			0.046 (0.058)	0.041 (0.058)	0.032 (0.058)
Married				0.077 (0.289)	0.039 (0.295)
No. Children				0.329 (0.225)	0.356 (0.229)
Child Aged j4				0.352 (0.562)	0.373 (0.570)
Constant	7.366*** (0.164)	7.402*** (0.905)	10.202*** (1.387)	10.521*** (1.403)	5.548* (3.218)
Observations	680	679	679	679	679
Adjusted $R^2$	0.065	0.067	0.084	0.088	0.120

*Note:*\* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level.

Table A3: Comments and Mentoring

	(1)	(2)
	Comments	Senior Mentor
Female	0.165*** (0.031)	-0.010 (0.037)
Age	-0.000 (0.004)	-0.003 (0.005)
Black	0.045 (0.063)	-0.054 (0.082)
Hispanic	0.115* (0.060)	0.037 (0.075)
Indian	0.219 (0.146)	0.234 (0.192)
Asian	-0.012 (0.055)	-0.056 (0.071)
Rank UG Uni.	-0.003 (0.005)	0.009 (0.006)
Rank Law School	0.014 (0.016)	-0.023 (0.021)
Rank in LS Class	-0.011 (0.021)	-0.030 (0.027)
Job Offers	-0.009 (0.006)	0.006 (0.008)
Debt after LS	0.012* (0.007)	-0.002 (0.008)
Married	0.003 (0.033)	0.054 (0.043)
No. Children	-0.009 (0.026)	-0.002 (0.033)
Child Aged $\geq 4$	-0.056 (0.064)	-0.088 (0.083)
Constant	-0.183 (0.304)	-0.033 (0.470)
Observations	570	679
Adjusted $R^2$	0.077	0.088

*Note:*\* denotes significance at the 10% level, \*\* denotes significance at the 5% level, and \*\*\* denotes significance at the 1% level.

## 10 Appendix A2

### 10.1 Model

We remind the reader of the main elements of the model described in Section 4.

Consider a lawyer at the start of her career. Let  $z \in (0, +\infty)$  be a continuous outcome variable that represents how successful the lawyer is later on in her career. For instance, imagine  $z$  as a composite index of the salary, position and firm where the lawyer works at the end of the game, i.e., at promotion time. The lawyer has the following period utility at the end of the game (as in Genicot and Ray):

$$v(z) + v(\max(z - a, 0))$$

where  $a$  represents the level of aspirations. We further assume that  $v(z) = \gamma(1 - e^{-z})$ , an increasing concave function, where  $\gamma$  parametrizes the strength of preferences.<sup>17</sup>

The outcome  $z$  is stochastically determined. Specifically,  $z$  follows an exponential distribution of parameter  $\lambda$ ,  $f(z) = \lambda e^{-\lambda z}$ .

The individual can exert effort  $h$  (number of hours) to shift the distribution of  $z$ . Specifically, assume  $\frac{1}{\lambda} = h$  at cost  $c(h) = \frac{\alpha}{2}h^2$ , so that higher effort increases the expected outcome.

The timing of the game is the following:

- Period 0: aspirations  $a$  are determined.
- Period 1: the individual chooses the level of effort, denoted  $h$  for number of hours.
- Period 2:  $z$  is realized.

We assume that the player has a present bias. Specifically we assume that she has beta-delta preferences, with  $\delta = 1$  and  $\beta < 1$ .

In period 0, we will distinguish two different cases, one where aspirations are exogenously given to the player and one where they are endogenously chosen by her.

### 10.2 Proofs

We now derive the proofs of our main results. We begin by deriving a formulation for the expected utility.

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<sup>17</sup>This choice of preferences keeps the analysis tractable, but the results naturally extend to more general preferences.

Given a value of  $\lambda$  (i.e., holding effort fixed), the second-period utility of the individual is given by

$$\begin{aligned} & \int_0^a \gamma (1 - e^{-z}) \lambda e^{-\lambda z} dz + \int_a^{+\infty} \gamma (1 - e^{-z} + 1 - e^{-(z-a)}) \lambda e^{-\lambda z} dz \\ &= \int_0^{+\infty} \gamma (1 - e^{-z}) \lambda e^{-\lambda z} dz + \int_a^{+\infty} \gamma (1 - e^{-(z-a)}) \lambda e^{-\lambda z} dz. \end{aligned}$$

We have

$$\int_0^{+\infty} \gamma (1 - e^{-z}) \lambda e^{-\lambda z} dz = \gamma \frac{1}{1 + \lambda}$$

Furthermore, using the change of variables  $y = z - a$ , we have

$$\int_a^{+\infty} \gamma (1 - e^{-(z-a)}) \lambda e^{-\lambda z} dz = \int_0^{+\infty} \gamma (1 - e^{-y}) \lambda e^{-\lambda(y+a)} dy = \gamma \frac{1}{1 + \lambda} e^{-\lambda a}$$

Overall, the expected utility in the second period for a given level of aspirations  $a$  can be written as:

$$U = \gamma \frac{1}{1 + \lambda} [1 + e^{-\lambda a}].$$

### Proof of Proposition 1

Effort will be set in period 1 to maximize the expected utility, which involves an immediate cost of effort and the utility collected in period 2 (and thus discounted by  $\beta$ ):

$$\begin{aligned} & \beta \gamma \frac{1}{1 + \lambda} [1 + e^{-\lambda a}] - \frac{\alpha}{2} h^2 \\ &= \beta \gamma \frac{h}{1 + h} [1 + e^{-a/h}] - \frac{\alpha}{2} h^2 \end{aligned} \tag{1}$$

The FOC of the maximization problem is given by:

$$\beta \gamma \frac{1}{(1 + h)^2} [1 + e^{-a/h}] + \beta \gamma \frac{a}{h^2} \frac{h}{1 + h} e^{-a/h} - \alpha h = 0$$

Below, we use the notation

$$F(a, h) = \beta \gamma \frac{1}{(1 + h)^2} [1 + e^{-a/h}] + \beta \gamma \frac{a}{h^2} \frac{h}{1 + h} e^{-a/h} - \alpha h$$

We have

$$\frac{\partial F}{\partial h} = \beta \gamma \left[ -\frac{2}{(1 + h)^3} + e^{-a/h} \left( -\frac{2}{(1 + h)^3} + \frac{h}{1 + h} \frac{a}{h^3} \left( -2 + \frac{a}{h} \right) \right) \right]$$

We can show that the second-order condition is satisfied.

$$\frac{\partial F}{\partial h} < 0$$

The implicit function theorem implies that

$$\frac{\partial h}{\partial a} = -\frac{\frac{\partial F}{\partial a}}{\frac{\partial F}{\partial h}}$$

We have

$$\begin{aligned} \frac{\partial F}{\partial a} &= \beta\gamma e^{-a/h} \left[ -\frac{1}{h} \frac{1}{(1+h)^2} + \frac{1}{h^2} \frac{h}{1+h} - \frac{a}{h^2} \frac{1}{1+h} \right] \\ &= \beta\gamma e^{-a/h} \frac{a}{h^2} \frac{1}{(1+h)^2} [h^2 - a(1+h)] \end{aligned}$$

Defining  $\bar{a} = \frac{h^2}{1+h}$ , we see that  $\frac{\partial F}{\partial a} > 0$  if and only if  $a \leq \bar{a}$ . We thus obtain the result of Proposition 1.

### Proof of Proposition 2

The player chooses  $a$  in period 0 to maximize:

$$\beta \left[ \gamma \frac{h}{1+h} \left[ 1 + e^{-a/h} \right] - \frac{\alpha}{2} h^2 \right] \quad (2)$$

which corresponds to expression (1) but where present bias parameter  $\beta$  applies both to costs of effort and future benefits. The equilibrium level of aspirations is characterized in the following result.

Use the notation

$$G(a, h) = \gamma \frac{h}{1+h} \left[ 1 + e^{-a/h} \right] - \frac{\alpha}{2} h^2$$

The FOC with respect to  $a$  is given by:

$$\frac{\partial G(a, h)}{\partial h} \frac{\partial h}{\partial a} - \gamma \frac{1}{1+h} e^{-a/h} = 0$$

We have

$$F = \beta \frac{\partial G(a, h)}{\partial h} - (1 - \beta)\alpha h$$

Given that  $F = 0$ , we can rewrite the FOC above

$$\frac{(1 - \beta)}{\beta} \alpha h \frac{\partial h}{\partial a} - \gamma \frac{1}{1+h} e^{-a/h}$$

For  $\beta$  sufficiently small, the FOC is positive at  $a = 0$ , so that the lawyer will optimally set aspirations to be strictly positive.

Result (1) naturally follows. The player will only set strictly positive aspirations if doing so can increase effort levels. Thus, when aspirations are endogenously chosen, they will always be set at a value less than  $\bar{a}$ .

We now prove result (2).

Let

$$H = \frac{(1-\beta)}{\beta} \alpha h \frac{\partial h}{\partial a} - \gamma \frac{1}{1+h} e^{-a/h}$$

The equilibrium level of aspirations is implicitly defined by  $H = 0$ .

The implicit function theorem yields

$$\frac{\partial a}{\partial \beta} = - \frac{\frac{\partial H}{\partial \beta}}{\frac{\partial H}{\partial a}}$$

For an interior solution, the second-order condition applies, and thus  $\frac{\partial H}{\partial a} < 0$ . Furthermore, we have

$$\frac{\partial H}{\partial \beta} = - \frac{1}{\beta^2} \alpha h \frac{\partial h}{\partial a} < 0.$$

Thus, overall  $a^*$  is decreasing in  $\beta$ , i.e., more present-biased individuals (with lower  $\beta$ ) will set higher aspirations.

We have:

$$\frac{\partial a}{\partial \gamma} = - \frac{\frac{\partial H}{\partial \gamma}}{\frac{\partial H}{\partial a}}$$

The term  $\frac{\partial H}{\partial \gamma}$  is more difficult to sign since  $h$  is a function of  $\gamma$ . However, when  $\beta$  is small enough, only the left-hand side of the expression above matters, and since both  $h$  and  $\frac{\partial h}{\partial a}$  are increasing in  $\gamma$ , we have  $\frac{\partial H}{\partial \gamma} > 0$ . Overall, this implies that  $a^*$  is increasing in  $\gamma$  if  $\beta$  is small enough.